

HISTORIC PROPERTY INVENTORY FORM

IDENTIFICATION SECTION

Field Site No. 117-KW OAHP No. Date Recorded 4-Apr-98

Site Name Historic Exhaust Air Filter Building

Common

Field Recorder Jim Sharpe

Owner's Name U.S. Department of Energy, Richland Operations Office

Address P.O. Box 550

City/State/Zip Code Richland, WA 99352

Status

☒ Survey/Inventory

☐ National Register

☐ State Register

☐ Determined Eligible

☐ Determined Not Eligible

☐ Other (HABS, HAER, NHL)

☐ Local Designation

Photography

Photography Neg. No. 83G195-63CN

(Roll No. & Frame No.)

View of 117-KW Facility

Date 9/16/83

Classification

☐ District

☒ Site

☒ Building

☐ Structure

☐ Object

District Status

☒ NR

☐ SR

☐ LR

☐ INV

Contributing

☒ Non-Contributing

District/Thematic Nomination Name Hanford Site Manhattan Project and Cold War Historic District

Description Section

Materials & Features/Structural Types

Building Type Industry

Plan

Structural System

No. of Stories

Roof Type

☐ Gable

☒ Flat

☐ Monitor

☐ Gambrel

☐ Shed

☐ Hip

☐ Pyramidal

☐ Other (specify)

Cladding (exterior Wall Surfaces)

☐ Log

☐ Horizontal Wood Siding

☐ Rustic/Drop

☐ Clapboard

☐ Wood Shingle

☐ Board and Batten

☐ Vertical Board

☐ Asbestos/Asphalt

☐ Brick

☐ Stone

☐ Stucco

☐ Terra Cotta

☒ Concrete/Concrete Block

☐ Vinyl/Aluminum Siding

☐ Metal (specify)

☐ Other (specify)

Roof Material

☐ Wood Shingle

☐ Wood Shake

☐ Composition

☐ Slate

☐ Tar/Built-up

☐ Tile

☒ Metal (specify) Steel frame and hatch covers

☐ Other (specify)

☐ Not visible

Foundation

☐ Log

☐ Post & Pier

☐ Stone

☐ Brick

☒ Not visible

☐ Concrete

☐ Block

☒ Poured

☐ Other (specify)

Integrity

(Include detailed description in Description of Physical Appearance)

Intact

Slight

Moderate

Extensive

Changes to plan

Changes to windows

Changes to original cladding

Changes to interior

Other (specify)

State of Washington, Department of Community Development
Office of Archaeology and Historic Preservation
111 21st Avenue Southwest, Post Office Box 48343
Olympia, Washington 98504-8343 (206)753-4011

LOCATION SECTION

Address Building 117-KW, 100-K Area

City/Town/County/Zip Code Richland/Benton County/99352

Twp 13 Range 26 Section 31 I/4 Section SW 1/4 1/4 Sec SW, SW

Tax No./Parcel No. Acreage

Quadrangle or map name Coyote Rapids, Wash. Quad. 1986

UTM References Zone 11 Easting 300940 Northing 5169100

Plat/Block/Lot

Supplemental Map(s)



High Styles/Forms (Check one or more of the following)

☐ Greek Revival

☐ Gothic Revival

☐ Italianate

☐ Second Empire

☐ Romanesque Revival

☐ Stick Style

☐ Queen Anne

☐ Shingle Style

☐ Colonial Revival

☐ Beaux Arts/Neoclassical

☐ Chicago/Commercial Style

☐ American Foursquare

☐ Mission Revival

☐ Spanish Colonial Revival/Mediterranean

☐ Tudor Revival

☐ Craftsman/Arts & Crafts

☐ Bungalow

☐ Prairie Style

☐ Art Deco/Art Moderne

☐ Rustic Style

☐ International Style

☐ Northwest Style

☐ Commercial Vernacular

☐ Residential Vernacular (see below)

☒ Other (specify)

Industrial Vernacular

Vernacular House Types

☐ Gable Front

☐ Gable Front and Wing

☐ Side Gable

☐ Cross Gable

☐ Pyramidal/Hipped

☒ Other (specify)

Bunker style

NARRATIVE SECTION

Study Unit Themes (check one or more of the following)

- ☐ Agriculture
- ☐ Architecture/Landscape Architecture
- ☐ Arts
- ☐ Commerce
- ☐ Communications
- ☐ Community Planning/Development

- ☐ Conservation
- ☐ Education
- ☐ Entertainment/Recreation
- ☐ Ethnic Heritage (specify) _____
- ☐ Health/Medicine
- ☐ Manufacturing/Industry
- ☐ Military

- ☐ Politics/Government/Law
- ☐ Religion
- ☐ Science & Engineering
- ☐ Social Movements/Organizations
- ☐ Transportation
- ☒ Other (specify) Manhattan Project & Cold War Era
- ☒ **Study Unit Sub-Theme(s)** Waste Management (Air)

Statement of Significance

- Date of Construction 1960s Architect/Engineer/Builder Kaiser Engineers
- ☒ In the opinion of the surveyor, this property appears to meet the criteria of the National Register of Historic Places.
- ☒ In the opinion of the surveyor, this property is located in a potential historic district (National and/or local).

The 117-KW Exhaust Air Filter Building was located in the K-West Reactor Area near the south shore of the Columbia River on the Hanford Site. The 117-KW Exhaust Air Filter Building was designed to filter ventilation air from the confinement zone of the 105-KE Reactor Building before it was discharged to the atmosphere through the 116-KW Exhaust Stack. The 117-KW Building received diverted air from the 105-KE Reactor Building via an underground reinforced concrete duct. After the air flowed through particulate and activated charcoal filters, it went through below and above grade concrete ducts into the exhaust stack and was released into the atmosphere.

It is therefore the conclusion of the U.S. Department of Energy that the 117-KW Exhaust Air Filter Building is eligible for inclusion in the National Register of Historic Places under Criterion a as a contributing property within the Hanford Site Manhattan Project and Cold War Era Historic District.

Description of Physical Appearance

The 117-KW Exhaust Air Filter Building was constructed of reinforced concrete. It measured 59 feet long, 39 feet wide and 35 feet high. Only about eight feet of the facility was above grade. It was constructed primarily below the surface for inexpensive shielding, ease of vehicle and personnel travel in the area, and abandonment in place if necessary. The facility contained two identical filter cells separated by a two-story operating gallery. The upper gallery provided access to the cells and ducts. The lower gallery contained the seal pipe pump, the fill and drain lines, and the ductwork of the small exhaust system. Each cell had three access routes. Each filter system was capable of independent operation. Individual filters were installed and sealed in aluminum filter frames that resemble egg crates. Each frame contained 32 filters and four frames made up of a filter bank for a total of 144 filters per bank. Each filter cell contained two filter banks in series. The first type was capable of removing 99.95 percent of .03 micro diocetophthalate particules and contained impregnated mineral fiber separators and glass fiber web strips. The second filter system contained activated charcoal positioned between two horizontal, accordian pleated, perforated steel plates. The filter system removed about 95 percent of the iodine from the air. The 117-KW facility was identical to the 117-B facility. The roof consisted of a steel frame and hatch covers. The walls were constructed of reinforced concrete. In the lowest point in the building was a sump pump. Ventilation ducts were five feet wide by 11-1/2 feet high. The ducts contain large turning vanes to deflect air moving into or out of the filter cells.

Major Bibliographic References

Photograph 83G195-63CN
Drawings H-1-19835, H-1-19836
AEC-GE. 1964. *Catalog of Hanford Buildings and Facilities 100 Areas*. GEH-26434-100. Richland, Washington.
Hanford Atomic Projects Operation. 1963. *Hazards Summary Report Volume3-Description of the 100-KE and 100-KW Production Reactor Plants*. HW-74095. Richland, Washington.
Westinghouse Hanford Company. 1988. *Hanford Surplus Facilities Programs Facilities Listings and Descriptions*. WHC-SP-0331. Richland, Washington.